II. CLAIMS

1. (Currently Amended) A ~~G16/gust 44 or G15/gust44~~ Gα16/gust 44 or Gα15/gust44 chimeric G-protein wherein the last 44 amino acids of the ~~G16/gust 44 or G15/gust44~~ Gα16/gust 44 or Gα15/gust44 protein sequence are replaced with a 44 amino acid unit of Gustducin, where such 44 amino acid unit of Gustducin is the last 44 amino acids of SEQ ID NO:2 where the chimeric protein, when employed in a mammalian cell-based assay increases the signal strength to at least double the signal strength of wild type Gα16.

2-5. Cancelled

6. (Previously Presented) A G-protein according to claim 1 encoded for by the nucleic acid set forth in SEQ ID NO:1.

7. (Previously Presented) A nucleic acid comprising the nucleotide sequence set forth in SEQ ID NO:1 encoding for a G-protein according to claim 1.

8. (Previously Presented) An expression vector comprising nucleic acid comprising the nucleotide sequence set forth in SEQ ID NO:1 encoding for a G-protein according to claim 1.

9. (Previously Presented) A host cell transformed with an expression vector according to claim 8.

10. (Previously Presented) A method of producing a chimeric G-protein according to claim 1 comprising the step of culturing host cells having contained therein an expression vector

encoding for the chimeric G-protein, under conditions sufficient for expression of said G-protein, thereby causing production of the protein, and recovering the protein produced by the cell.

11. (Currently Amended) [[A]] The method of analysis and discovery of modulators of ~~bitter~~ taste receptors of claim 12 where the taste receptors are bitter receptors ~~using the chimeric proteins according to defined in claim 1~~.

12. (Currently Amended) A method of analysis and discovery of modulators of taste receptors ~~according to claim 11~~ employing a mammalian cell-based assay employing a transfected gene or cDNA encoding a chimeric protein ~~of the invention~~ of claim 1 and a taste receptor, the method comprising the steps of contacting a compound with cells, and determining the functional effect of the compound on the chimeric G-protein.

13. (Currently Amended) A method according to claim 10 wherein ~~the functional effect is~~ expression of said G-protein is measured by signal transduction output determined by measuring the changes in intracellular messengers IP3 or calcium^{2+}.

14-17. Cancelled

18. (Currently Amended) A ~~G16/gust-44 or G15/gust44~~ Gα16/gust 44 or Gα15/gust44 chimeric G-protein wherein the last 44 amino acids of the ~~G16/gust-44 or G15/gust44~~ Gα16/gust 44 or Gα15/gust44 protein sequence are replaced with a 44 amino acid unit of Gustducin, where such 44 amino acid unit of Gustducin is the last 44 amino acids of SEQ ID NO:2, and wherein the resulting $G_{\alpha q-gust44}$ chimeric G-protein has a sequence homology of

at least 80% in the last 44 amino acids of SEQ ID NO:2 where the chimeric protein, when employed in a mammalian cell-based assay increases the fluorescence signal strength by at least double the signal strength of wild type Gα16.

19. (Previously Presented) The chimeric G-protein of claim 18 having a sequence homology of at least 90% in the last 44 amino acids of SEQ ID NO:2.

20. (Previously Presented) The chimeric G-protein of claim 18 having a sequence homology of at least 95% in the last 44 amino acids of SEQ ID NO:2.

21. (Currently Amended) A ~~G16/gust 44 or G15/gust44~~ Gα16/gust 44 or Gα15/gust44 chimeric G-protein wherein the last 44 amino acids of the ~~G16/gust 44 or G15/gust44~~ Gα16/gust 44 or Gα15/gust44 protein sequence are replaced with a 44 amino acid unit of Gustducin, where such 44 amino acid unit of Gustducin is the last 44 amino acids of SEQ ID NO:2, and wherein the resulting $G_{aq-gust44}$ chimeric G-protein has a sequence homology of at least 80% to SEQ ID NO:2.

22. (Previously Presented) The chimeric G-protein of claim 21 having a sequence homology of at least 90% to SEQ ID NO:2.

23. (Previously Presented) The chimeric G-protein of claim 21 having a sequence homology of at least 95% to SEQ ID NO:2.

24. (Previously Presented) A ~~G16/gust 44 or G15/gust44~~ Gα16/gust 44 or Gα15/gust44 chimeric G-protein wherein the last 44 amino acids of the ~~G16/gust 44 or G15/gust44~~ Gα16/gust 44 or

Gα15/gust44 protein sequence are replaced with a 44 amino acid unit of Gustducin, where such 44 amino acid unit of Gustducin is the last 44 amino acids of SEQ ID NO:2, and wherein the resulting $G_{\alpha q-gust44}$ chimeric G-protein has a sequence homology of at least 80% to SEQ ID NO:2 and the chimeric protein binds to one or more of the human bitter, sweet and umami taste receptors.

25. (Previously Presented) The chimeric G-protein of claim 24 having a sequence homology of at least 90% to SEQ ID NO:2.

26. (Previously Presented) The chimeric G-protein of claim 24 having a sequence homology of at least 95% to SEQ ID NO:2.

27. Canceled

28. (Previously Presented) A nucleic acid encoding for a G-protein according to claim 18.

29. (Previously Presented) An expression vector comprising nucleic acid comprising the nucleotide sequence encoding for a G-protein according to claim 18.

30. (Previously Presented) A host cell transformed with an expression vector according to claim 29.

31. (Previously Presented) A method of producing a chimeric G-protein according to claim 18 comprising the step of culturing host cells having contained therein an expression vector encoding for the chimeric G-protein, under conditions sufficient for expression of said G-protein, thereby causing production of

the protein, and recovering the protein produced by the cell.

32. (Currently Amended) [[A]] The method of claim 33 where the taste receptor is a ~~analysis and discovery of modulators of~~ bitter taste receptor ~~receptors using the chimeric proteins according to defined in claim 18~~.

33. (Currently Amended) A method of analysis and discovery of modulators of taste receptors using the chimeric proteins of claim 18 ~~according to claim 32~~ employing a mammalian cell-based assay employing a transfected gene or cDNA encoding a chimeric Gα16/gust 44 or Gα15/gust44 G-protein ~~protein of the invention~~ and a taste receptor, the method comprising the steps of contacting a compound with cells, and determining the functional effect of the compound on chimeric G-protein.

34. (Currently Amended) A method according to claim 31 wherein ~~the functional effect is~~ expression of said G-protein is measured by signal transduction output determined by measuring the changes in intracellular messengers IP3 or calcium^{2+}.

35. (New) The method of claim 33 where the taste receptor is a sweet taste receptor.

36. (New) The method of claim 33 where the taste receptor is a umami taste receptor.

37. (New) A Gα16/gust 44 or Gα15/gust44 chimeric G-protein wherein the last 44 amino acids of the Gα16/gust 44 or Gα15/gust44 protein sequence are replaced with a 44 amino acid

unit of Gustducin, where such 44 amino acid unit of Gustducin is the last 44 amino acids of SEQ ID NO:2, and where the chimeric protein binds to one or more of the human bitter, sweet and umami taste receptors.

38. (New) The method of claim 12 where the receptors are sweet receptors.

39. (New) The method of claim 12 where the receptors are umami receptors.